

## ADHESIVE SILASTIC GEL SHEET FOR TREATMENT OF KELOIDS AND HYPERTROPHIC SCARS

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Adhesive silastic gel sheet cover was used as the only treatment for post traumatic hypertrophic scar. Remarkable improvement was observed by 4 months. No complications occurred and patient compliance was very good.

### INTRODUCTION

Although there are many modalities of treatment described for keloids and hypertrophic scars such as surgical excision, pressure therapy, radiation, laser, cryosurgery etc. many of these modalities have been associated with high rate of recurrence, are expensive or associated with complications and require prolonged treatment.

Recently much attention has been focussed on adhesive silastic gel sheets and other contact media because of their simplicity and relatively low cost.

### CASE REPORT

A 22 year old female patient presented with 4 months old post traumatic hypertrophic scar on left hand. The scar was assessed objectively by its redness, elevation, hardness and subjectively by itching and pain. [1] The lesion was covered with a piece of adhesive silastic gel sheet (Cica-care) (Fig. 1) without any other additional treatment for 6 months (Fig. 2). Itching and pain subsided by 2 months and also scar became softer. By 4 months scar showed diminished redness. At the end of six months more improvement in consistency and thickness of the scar was observed apart from other criterias (Fig. 3) and patient compliance was very good throughout the treatment as this avoided taking painful intralesional steroid injections and patient was satisfied with the result.



Fig. 1: The red elevated keloid scar.

Exhibit B

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Fig. 2 : Lesion with SLS.

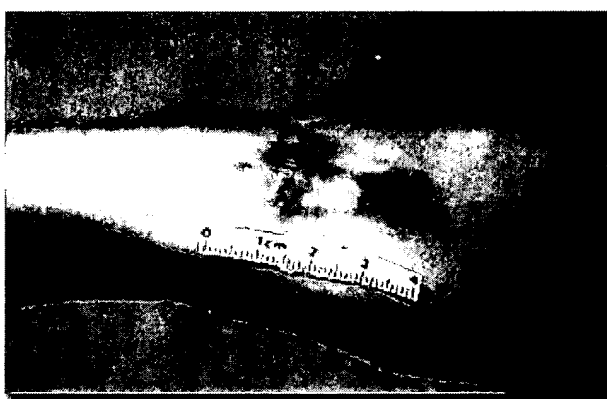


Fig. 3 : Post treatment results.

## REVIEW OF LITERATURE

### Silastic Gel Sheeting (SGS)

Silastic gel sheeting is a soft semioclusive scar cover made of crosslinked polymethylsiloxane polymer.

This method of treatment for burn scar management was first described by Perkins in 1982. [2] Initially it was thought to be a method of pressure treatment. Quinn in 1985 [3] reported that the efficacy of silastic gel sheets was unrelated to pressure. When compared to pressure therapy alone SGS was found to be more effective. Different workers have given different success rates with use of SGS in literature.

Quinn et al 1987 [4] in a 3 year clinical trial showed that 75 out of 92 patients with chronic hypertrophic scars or keloids were found to have some improvement with use of SGS after 2 months.

Ohmori from Japan in 1988 [5] showed 40 out of 46 chronic keloids were found to improve when treated with SGS for 6 months.

In a prospective, controlled trial, ST Ahn and co-workers [6] found SGS to produce significant improvement in 11 of 14 chronic hypertrophic scars when evaluated by elastometry and photography.

Although confirmed in its efficacy for treatment of chronic hypertrophic scars and keloids, recently SGS has also been found to prevent development of these scars.

In a controlled analysis of fresh surgical incisions, SGS was found to significantly inhibit the formation of hypertrophic scars when used for at least 12 hours daily for 2 months. [7]

Recently Gold in 1993 [8] used topical silicon gel sheets in patients with keloids and hypertrophic scars secondary to surgical procedures and traumatic insults and found them to be effective in improving scar thickness and scar colour.

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Fulton JE in 1995 [9] recommended topical silicon gel sheets for prevention and management of evolving hypertrophic and keloid scars.

#### Mechanism of action

The mechanism of action of SGS is unclear. Physical and chemical effects of SGS on scarring have been explored. Using pressure transducers, it was found that SGS exerted negligible pressures, compared with 15 mmHg to 40 mmHg required by pressure garments to achieve their effects. Thus therapeutic effect of SGS is not dependent on pressure.

Temperature and oxygen tension changes also were investigated, no differences were noted between treated scars and normal skin. Studies of the bacteriology and mechanics of the gel sheets itself were noncontributory, the effects due to occlusion were also ruled out.

The water vapour transmission rate of SGS were found to be about half that of normal skin. A dramatic increase in water loss from scar is noted on removal of the gel from skin. SGS may therefore work by affecting scar hydration. The reduction in water vapour loss is postulated to decrease capillary activity, thereby reducing collagen deposition and scar hypertrophy.

The possibility of release of low molecular weight silicon fluid into tissues has been raised but histological analysis of biopsy specimens from SGS treated scars showed no evidence of silicon leakage.

Several minor complications have been described with the use of SGS. Superficial maceration or erosion of the scar has occurred, usually due to excessive pressure. Occasional pruritus and rash also has developed, usually due to poor local hygiene. These problem usually resolve when gel sheeting was removed temporarily or duration of use was reduced to 12 hours per day. Sewada and Sone [10] from Japan in 1990 proposed use of silicon cream containing silicon oil on 47 patients with keloids and hypertrophic scars. Silicon cream and occlusion dressing technique similar to silicon gel treatment was used resulted in remarkable improvement in 82% cases, whereas simple application of cream on lesions resulted in mild improvement in 22% cases. They concluded that occlusion and hydration are the principle modes as action of silicon gel sheet method and the silicon cream with occlusive technique.

In 1922 Sewada and Sone [1] again to support their hypothesis of hydration and occlusion treatment conducted a study containing cream which doesn't contain silicon with a pressure and occlusive dressing and showed hydration and occlusion are effective in treating hypertrophic scars and keloids and that the presence of silicon oil is not essential.

Janet E Sproat et al [11] from Canada after studying 14 presternal, post thoracotomy scars treated by both ILS and SGS concluded; results of SGS were superior to ILS the sheets are painless, easy to apply and cost effective.

Chang in 1995 [12] in his experiment on effect of keratinocytes on fibroblasts, came to conclusion that hydration, not silicon modulates the in vitro keratinocyte-fibroblast interaction. This may be one possible mechanism by which topical silicon or occlusive dressings treatment may affect the hypertrophic scars and keloids.

While no definite theory exists as to how hydration is beneficial, the possible explanation is that, water itself passes through healthy skin and leads to the disappearance of hyperkeratosis ultimately causing hydration and eventual maceration of the scar particularly the horny layer.

Palmieri B et al [13] recently in 1995 used vitamin E added silicon gel sheets in the treatment of keloids and hypertrophic scars with better response as compared to only silicon gel sheets.

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